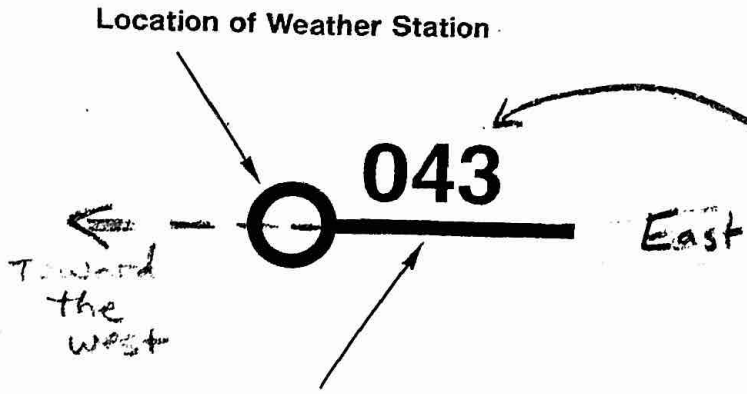


# ACTIVITY ■ What Is Weather?

## Wind and Pressure Relationships

Weather patterns are often difficult to study since the weather conditions we experience are usually only small parts of very large systems. One of the best ways to look at a large system when we are capable of directly viewing only a small part of it is to observe a model. In this activity you will examine a model of a section of the troposphere and then infer relationships that exist between winds and atmospheric pressure.

The diagram below contains wind direction and atmospheric pressure information for a typical weather station. The weather information is reported according to the following station model.



### SYMBOL RULE:

**Atmospheric Pressure** Only the last three digits are plotted. If the first digit is less than 5, the number 10 is omitted. If it is 5 or higher, the number 9 is omitted.

**Note:** The pressure values are given to tenths of millibars, but the decimal point is not plotted. So, 043 really means 1004.3 mb.

Symbol                      pressure reading

**Wind Direction** The wind blows toward the center of the station model (from the east).

1. The map on the next page shows weather station information from a variety of weather stations. Scientists often connect areas of equal air pressure with lines called isobars. Using a pencil, draw the following isobars. It will be best to lightly sketch the lines first. Then draw the isobars as smooth, curved lines. Label each isobar.

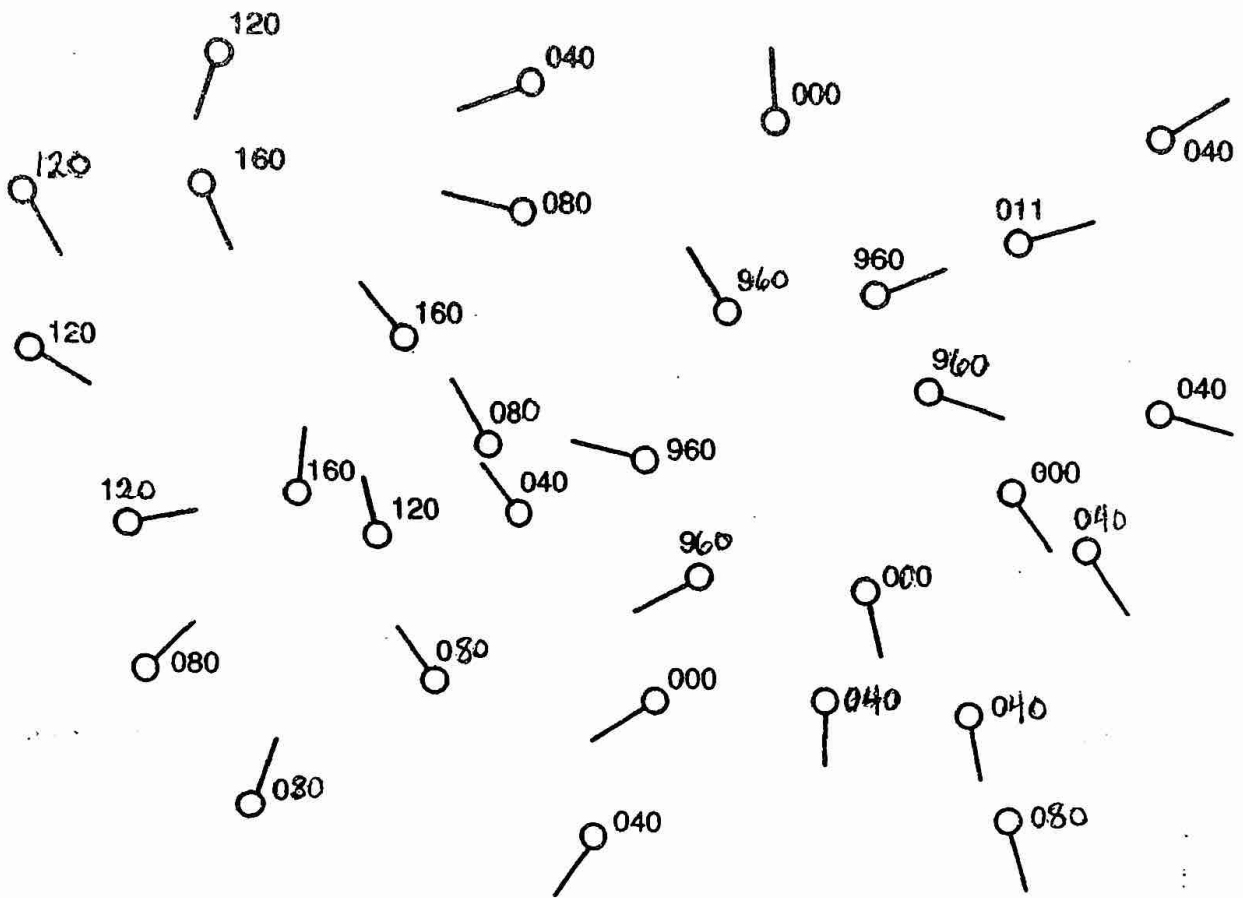
Symbol	<u>960</u>	=	996.0 mb	Pressure Reading
	_____	=	1000.0 mb	
	_____	=	1004.0 mb	
	_____	=	1008.0 mb	
	_____	=	1012.0 mb	
	_____	=	1016.0 mb	

2. Now locate the centers of the two pressure systems and label each appropriately as either HIGH or LOW.



3. Now add arrows to the wind sticks. Extend the wind stick through the station model and put a pointing arrowhead on it to indicate the direction it is blowing toward.

### Weather Station Data



Study the isobar map you have drawn to answer the following questions.

1. Describe the direction of wind movement around areas of high- and low-pressure systems by underlining the words that most accurately complete the following statements.
  - a. Wind in an area of high pressure blows (in toward/out away from) the center.
  - b. Wind in an area of low pressure blows (in toward/out away from) the center.
2. Describe the direction that winds appear to blow between centers of high and low pressure. \_\_\_\_\_

PRESSURE GRADIENT = Difference in pressure  $\div$  distance.

The closer the isobars are together,  
the faster the wind blows.